

NOTES ON A TREMATODE FROM THE WHITE OF A NEWLY-LAID HEN'S EGG.

By Dr. EDWIN LINTON.

A Trematode, sent to me by the Smithsonian Institution for identification, proves, upon examination, to be a specimen of *Distomum ovatum* Rudolphi.

The specimen was obtained and sent to the Smithsonian Institution by Mr. C. H. Slayton, of Berlin, Wis. The only information furnished with it is that the worm was found in the white of a freshly-laid hen's egg.

The specimen was preserved in alcohol and was too opaque to show any of the internal anatomy; after placing it in glycerine, however, so much of the gross anatomy became visible as is shown in the appended sketch.

The intestine divides nearly midway between the two sucking-disks into two branches, each of which continues as a slender, dark line with occasional darker-colored enlargements until it becomes indistinguishable amidst the opaque branches of the vitellaria.

Two large yellowish opaque oval bodies lie side by side in the posterior third of the body. These I take to be the testes, although they seem disproportionately large for those organs. The yellowish-brown vitellaria are quite conspicuous, and extend from a point nearly opposite the posterior edge of the ventral sucking-disk along each margin of the body to the posterior edge of the testes, their branches overlapping the latter organs both dorsally and ventrally. The excretory duct of the vitellaria shows plainly as a transverse dark line. It lies behind the ventral disk at a distance from the latter equal to the diameter of that organ. Immediately behind the disk it is transverse for an interval equal to the diameter of the disk, then bends abruptly forward, making an acute angle at each side. From these angles the duct passes backward and outward to each of the laterally placed vitellaria. The vitellarian duct is much more plainly seen in a dorsal than in a ventral view. Close behind the ventral disk, a little to the right of the central axis, is a lobed, pear-shaped mass which I take to be the germarium, the anterior end of which is larger and free, while the posterior end is the smaller and appears to unite with the vitellarian duct. Adjoining the germarium on the right is a small two-lobed glandular organ, or, more strictly, two glands lying the one in front of the other—the posterior one larger and dorsal, the anterior smaller and ventral. These are apparently the upper and lower seminal vesicles. Behind these organs lies a larger, somewhat transparent mass, irregular in outline and indefinite in extent, a part of which doubtless represents the shell-gland. A darker part of this mass, which lies to the left and behind the germarium, is probably the ovary. When the specimen was rendered transparent with oil of cloves a cluster of about a hundred ova was discovered lying near the ventral surface of the body, immediately in front of the testes. Some scattered masses of

ova were also seen lying behind the testes. One ribbon-like mass of ova marked the position of one of the convolutions of the oviduct.

Behind the testes the superficial tissue could be seen to be reticulated with the transparent anastomosing vessels of the water-vascular system leading finally to a terminal pore.

The penis can be traced from the point where the intestine divides, forward to the left side of the oval sucking-disk. The whole surface of the body is somewhat rugose.

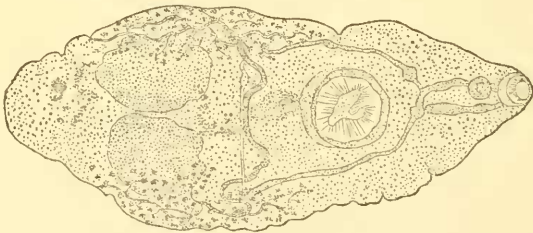
The outline and proportions of the different organs are sufficiently shown in the figure. In order to obtain further details it would be necessary to stain and sectionize.

Following are measurements made on the alcoholic specimen :

	Millimeters.
Length	7
Breadth at ventral disk	2.1
Breadth at widest part	2.8
Diameter of oral disk5
Diameter of aperture of same245
Diameter of ventral disk805
Distance between centers of disks	1.925
Length of testis	2
Breadth of testis	1
Length of ova024
Breadth of ova013

The ratio of the diameter of the anterior to the posterior sucking-disk, while less than that given by Von Linstow for *D. ovatum*, viz, 1 : 2.1, coincides more nearly with it than it does with the ratio 1 : 1, given by the same author for his species *D. pellucidum*, from the œsophagus of the domestic fowl.

The vitellaria, since they barely extend to the posterior edge of the ventral sucker, are more decidedly like those of *D. pellucidum* than of *D. ovatum*.



Distomum ovatum Rud., from white of newly-laid hen's egg. Ventral view, enlarged 10 diameters
Sketch by M. B. Linton.

Distomum ovatum Rudolphi is a well-known Trematode, and has been recorded as occurring in a variety of avian hosts.*

* Cobbold, in his *Synopsis of the Distomidae* [Journal of the Proceedings of the Linnean Society, Zoology, Vol. V, 1861], gives the following with regard to the habitat of this parasite:

"This species has been observed outside the intestine of the domestic goose (*Anas Anser*) by Müller, and in the Bursa of Fabricius in the following species: In *A. clyp-*

The occurrence of this parasite in the eggs of fowls, while not common, is not difficult to account for. Its favorite place of lodgment in its host is in the Bursa of Fabricius. An individual may occasionally penetrate one of the passages which communicate with the cloaca. It is well known that such excursions are sometimes made by this parasite into the oviduct. If it should penetrate beyond the shell-forming glands when an ovum is *in transitu* it would not be an improbable thing if the parasite should find itself enveloped in the glairy albumen which is being exuded there. Indeed, it is difficult to conceive how it could escape this fate. Once within the albuminous envelope it becomes, as it were, a part of the egg, and the deposition of the calcareous covering would not be impeded in the least by its presence there.

It is not at all likely that *D. ovatum* could develop in a human host, yet in view of the fact that the Entozoa in the process of their development may pass their different stages in very different hosts, it should lead one to be on his guard when he partakes of raw or partially cooked animal food, of whatever kind it may be.

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eatu by Rudolphi; in *A. clangula*, *A. ferina*, *A. glacialis*, *A. marila*, and *A. musica* by Creplin; in *Fulica atra* by Wedl and others; in *Corvus pica* by Rudolphi; in *C. frugilegus* by Meyer; in *C. cornix*; in *Falco subbuteo*; in *F. nisus*; in *F. buteo*; in *Strix brachyotus*; in *Scolopax gallinago* by Wedl, and in *S. rusticola* and *Podiceps suberistatus* by Mehlis; in *Turdus viscivorus*; in *Gallinula chloropus* and *G. porzana* by Siebold; in *Otis tarda* by Otto; in *Ardea grus* by Wedl; in *Lanius minor*; in *Fringilla coelebs*; in *F. montana* by Creplin; in *Numenius arcuatus*; in *Vanellus cristatus*; in *Larus canus* and *Uria grylle* by Creplin; it has likewise been recorded by Otto in the oviduct of *Phasianus gallus*, and in the egg itself by Hanow, Purkinje, Eschscholtz, and Schilling."

For additional remarks on literature and synonymy see Diesing, Syst. Helm, p. 335-336, and Revis. der Myzhelm, p. 333; Von Linstow, Troschel's Archiv, 1873, I, p. 95-97 and Compend. Helm, 1878.